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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,569	01/02/2002	Philip Atkin	GJEL:0003	5846
7590 Michael G. Fletcher Fletcher, Yoder & Van Someren P.O. Box 692289 Houston, TX 77269-2289		EXAMINER AGGARWAL, YOGESH K		
		ART UNIT 2622		
		PAPER NUMBER		
		MAIL DATE 04/13/2009		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/038,569

**Applicant(s)**

ATKIN, PHILIP

**Examiner**

YOGESH K. AGGARWAL

**Art Unit**

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

**Examiner's response:**

2. Applicant argues with regards to claim 1 that the meaning of "a linear response" as the recitation would be understood by one of ordinary skill in the art. Present embodiments are directed to producing a response to light intensity that is linear over its whole range: that is, if one plotted it, the graph would be a single straight line through the origin. The only reason the term "substantially" linear is used is because there are bound to be minor imperfections due to noise (in the "real world"). The Examiner respectfully disagrees.

Krymski teaches in figure 4 that the combination is a straight line representation. Even though the combination shows two different straight lines, each part of the line is individually linear. Therefore the claimed recitation "output is substantial linear representation of the brightness of an image" is taught in Krymski. Krymski reference teaches obtaining a substantial linear representation of the brightness of an image after the images are combined. Applicant is arguing "Present embodiments are directed to producing a response to light intensity that is linear over its whole range: that is, if one plotted it, the graph would be a single straight line through the origin" and not claiming this. As suggested by the Examiner in the previous action the applicant should claim the invention to cover the fact that the image is linear for the whole range of brightness values in order to overcome Krymski's reference. The term "linear response" as applicant has argued is not necessarily the only definition understood by one skilled in the art. Even in the applicant's specification, the term "linear response" has not been defined or

explained. Therefore one skilled in the art is free to interpret the term "linear response" as taught by Krymski.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann (US Patent # 5,828,793) in view of Krymski (US Patent # 7,209,166).

[Claim 1]

Mann discloses a method of creating an image with a still video camera (col. 11 lines 43-46, figure 8, element 202). Mann further teaches that the image is transferred to a computer to be stored on a main memory 210 represented as 212<sub>1</sub>, 212<sub>2</sub>, 213<sub>3</sub> etc. (col. 11 lines 46-54). Mann also teaches that the composite images formed from a series of input images wherein every pixel of the composite image is drawn from the corresponding pixel in each of the input source images according to a weighted average. The weighting is based on a certainty function associated with each source image pixel corresponding to an output pixel in the final composite image. The value of the relevant pixel parameter for a given final-image pixel (weighted average of n samples) is given by

$$\sum_n c_n P_n / \sum_n c_n$$

where  $c_n$  is the certainty function associated with the corresponding pixel of each source image  $n$  (col. 6 line 51-col. 7 line 8). It is noted that  $P_n$  (pixel parameter) is dependent upon exposure time, brightness or luminance and the gain of the system. Mann teaches that the resulting pixel image represented by the expression above is saved in a target buffer 250 whose contents are shown on screen display 234 (col. 12 lines 32-49). The features such as gamma correction (other image data) are also stored in the target image data (col. 13 lines 4-8).

Mann fails to teach explicitly obtaining a substantially linear representation of the image by combining two images. However Krymski teaches to write the image signal into the memory twice, first after short integration and then after long integration. Thus, after two operations of sampling, the resulted voltage in the memory will be a linear superposition of the two signals representing bright and dark image (Col. 3 lines 2-9, figures 1 and 3). Fig. 4 clearly teaches that combined signal is a substantial linear representation of the brightness (light intensity) of the image by combining two images. It is noted that that in order to obtain a wide dynamic range image the two long and short exposure images are combined so that the final image provides increased highlight detail despite the limited response of the system that produced the component images

Therefore taking the combined teachings of Mann and Krymski, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have obtained a substantially linear representation of the image by summing two images in order to obtain a wide dynamic range image so that the final image provides increased highlight detail despite the limited response of the system that produced the component images.

[Claim 3/1]

Mann teaches that the different images are color so that the offset will be color dependent (col. 13 lines 21-30).

***Allowable Subject Matter***

5. Claims 2 and 3/2 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to teach or suggest a linear relationship is established between images recorded with different exposure times by the use of a perpendicular regression technique whereby each image is transformed to match the scale and offset of the first in the series and whereby the weighted average is calculated.

6. Claim 3/2 is dependent upon claim 2.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YKA  
April 8, 2009

/M. Lee/  
Primary Examiner, Art Unit 2622